

Observations of Comet Barnard made at Mr. Wiggleworth's Observatory with the 15.5-inch Cooke Equatorial.

Date. 1887.	Greenwich Mean Time.			$\Delta\alpha$	$\Delta\delta$	α, δ	δ	Comparisons.
	h	m	s					
May 20	11	21	23	+ 1	8.18 ± .09	+ 5 51' 6" ± .8	15 23 50.68	- 26° 6' 59"'
21	12	22	42	-	42° 55' ± .09	- 59.2 ± .8	15 25 42.86	- 25 25 58.7
29	12	43	41	-	5 43' 99" ± .10	+ 9 50' 6" ± 1.2	15 41 4.60	- 19 39 51.6

Adopted Mean Places of Companion Stars for 1887.

Date.	α			Reduction.	δ	Reduction.	δ	Authority.
	h	m	s					
May 20	15	22	40.33	+ 2.17	- 26° 12' 49.9"	- 1.4		Star connected with Yarnall 6419
21	15	26	23.26	+ 2.15	- 25 24 58.3	- 1.2		" " " 6405
29	15	46	46.47	+ 2.12	- 19 49 42.3	+ 1.0		Yarnall 6543

The comet has a nucleus, but is faint and small. The observations are corrected for refraction.

Mr. Wiggleworth's Observatory, Scarborough:
1887, June 8.

The Solar Corona, as shown in Photographs taken during Total Eclipses. By W. H. Wesley.

(Communicated by the Secretaries.)

Having had occasion to make a very minute examination of the negatives taken during several of the recent solar eclipses, I have thought that it might be of interest to give an account of some of the prominent features of the photographic corona in the different years. I do not attempt to propound any theories, and shall only mention some of the current hypotheses with a view of showing how far they appear to be supported or contradicted by the photographic records.

Mr. Ranyard in the eclipse volume of the *Memoirs* has so fully discussed the photographs taken previously to 1878, that in most cases it will only be necessary very briefly to allude to them.

One of the most striking features in the corona of almost all the years under examination is the existence of a more or less well-marked polar rift, roughly, but perhaps never exactly, corresponding with the Sun's axis of rotation, to which it appears sometimes inclined as much as 30° . In most cases this rift is shown at both poles, but sometimes at one only; in 1882 it does not appear at all. The northern and southern rifts are seldom strictly opposite to one another, so that a line drawn through them does not pass through the centre of the Sun. The polar rifts are generally filled with shorter, straighter, and more radial rays, with a background of less density than in other parts of the corona.

On either side of the polar rift there usually appears a somewhat conical mass, composed of rays curving towards each other, forming groups of what Mr. Ranyard has appropriately called "synclinal structure," which give the quadrilateral or cruciform appearance frequently shown in corona drawings. They mostly seem to be situated over the zones of maximum sunspot activity, and have frequently greater extension than other parts of the corona.

Eclipse of 1851, July 28.

Dr. Busch's daguerreotype is remarkable as the first instance of a successful photograph of the corona. It shows the general form to a height nowhere much exceeding $\frac{1}{4}$ of a solar diameter. The corona is symmetrical and of hexagonal form, with a well-marked rift not far from the north and south poles, the southern rift being much the broader. On either side of these rifts are indications of synclinal masses; there are also similar masses in the equatorial regions fairly corresponding on each side. The orientation of the plate is rather uncertain. Wolf gives 64.2 as the relative number of sunspots for July 1851.